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Rethinking ward and at-large elections in cities: Total spending, the number of locations of selected city services, and policy types

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Abstract. This study shows why the conventional wisdom that cities with ward elections will spend more than cities with at-large elections is too simple and explains why the empirical findings have been so mixed. Ward vs. at-large elections will only affect the policy choices of city councils when the policy choice is one that is decided by the median legislator. When the policy is one that is decided by the rule of universalism, the relevant institutional determinant of choice is the number of legislators, and not whether they are elected at-large or by wards. Universalism is politically rational for divisible policies that all constituents deisre ("pork"); the majority rule equilibrium (at the median) is more rational for divisible policies that are generally desired, but only when they are not located too close to any one constituent's home ("LULUs"). The expectation then is that larger city councils will provide more parks than smaller ones, and that election by wards or at-large will be irrelevant for these policy choices. By contrast, community centers and libraries are thought to be generally desireable, but not when they are in one's backyard. The size of the council is not predicted to be relevant for these decisions, but councils elected by wards are more likely to have a median legislator who represents geographically concentrated constituents, such as the minority poor; their preferences will have a bigger impact on councils elected by wards than on councils elected at large. Data from a sample of council-manager cities with weak mayors who have no veto uphold these hypotheses.

1. Introduction

For the past 25 years, it has been conventional in studies of local governance to hypothesize that how the government is elected affects the public policy choices that the local government will make, and a host of empirical studies supports that expectation (Booms, 1966; Deno and Mehay, 1987; Santerre, 1986, 1989; Zax, 1989; Dalenberg and Duffy-Deno, 1991; Zax, 1990) but many do not (Mehay and Seiden, 1986; Reid, 1991; Sass, 1991; Farnham, 1990; Morgan and Pelissero, 1980). The purpose of this study is to show that, at least in the case of one particular institutional feature of local government elections

– whether the electoral system is ward-based or at-large – the conventional expectation, which is that city councils whose members are exclusively or predominantly elected from wards are likely to spend more than councils whose members are exclusively or predominantly elected at-large, is incorrect under most, though not all, circumstances; and to point out that the corresponding empirical models are under specified and therefore quite possibly erroneous. The paper also examines not just expenditures, but also the number of locations of selected municipal services. It further argues that ward or at-large elections matter only for services that are desireable, but only if they are not too close to one's home, whereas the size of the elected council matters only for services that are especially desireable when they are located next to one's home.

2. Previous research – empirical issues

The traditional literature argues that election systems should make a difference for public policy. In the case of ward and at-large elections, Dalenberg and Duffy-Deno (1991) state the usual expectation that ward election systems provide a greater incentive to logroll than at-large systems. Ward representatives are interested in providing public services whose benefits are geographically concentrated but whose costs are spread city-wide. By contrast, at-large representatives, whose constituency is thought to be city-wide, are more concerned with city-wide benefits. The standard empirical expectation, therefore, is that cities with ward-based electoral systems will spend more, especially on geographically visible public services, than cities with at-large electoral systems.[1] The empirical studies confirm this expectation only sometimes. For example, Dalenberg and Duffy-Deno (1991) find evidence to support this hypothesis but Farnham (1990) does not. Other studies look more generally at "reformed" governments (which, among other features, have at-large electoral systems) and "unreformed" governments (which have ward-based elections, strong mayors and partisan elections), and also come up with mixed findings. For example, Morgan and Pelissero (1980) find that structure has no impact on city spending, but Zax (1990) finds that reform governments spend more on municipal employees as do Deno and Mehay (1987).

There are two fundamental problems with the literature comparing unreformed to reformed governments in general, and with that comparing ward and at-large elections specifically. One problem is theoretical, and the other is empirical.

On the empirical side, previous studies fail to control statistically for many relevant institutional features of a local government, beyond the feature that

is being investigated. For instance, if one is comparing ward to at-large systems, it is critical to know whether the ward cities do or do not have a mayor independently elected by the city at large, who also has a veto. If such a person is part of the political environment, then the ward-based council must anticipate a veto from an actor with an at-large constituency; such a city may make choices that do not differ from cities with an at-large council, and will certainly make decisions that differ from similar cities with a ward-based council that is not subject to a mayoral veto. Dalenberg and Duffy-Deno (1991) compare ward and at-large cities, but the only other institutional variable that they hold constant is a proxy for the amount of competition among jurisdictions in a given area. The study finds that ward cities have a larger public capital stock than at-large cities, but it is also possible that this result is due to other institutional features such as the presence or absence of a strong mayor, or the size of the council. Zax (1990) compares cities with partisan, ward-based councils to "reform" cities, which have non-partisan at-large councils, and finds that the latter pay public employees more and hire more employees than their unreformed counterparts. He controls for many but not all institutional variables: held constant are whether or not there is a professional city manager and whether or not there is the direct election of a strong mayor. But ward vs. at-large is not separated from partisan vs. non-partisan, so it is not clear which of these two variables account for the observed result. Furthermore, the size of the council and the amount of competition among local jurisdictions in the local area are not controlled. Reid (1991) claims that institutional differences have no impact on local public expenditure determination – but he does not explicitly include in the empirical model ward vs. at-large elections, partisan vs. non-partisan elections, or the size of the local council, even though the conclusion predicts that altering these specific institutions won't make the government more (or less) responsive to the median city voter.

By contrast, this study separates the impact of ward vs. at-large elections from other institutional features in two ways. First, it examines only cities with weak mayors (i.e., mayors who are not independently elected; they are just another councilperson and have no veto). Second, it measures the impact of several other institutional features of local government by incorporating them explicitly into the empirical model, or by including proxies. Specifically, the study compares cities with ward based councils (those with > 50% elected from wards) to at-large councils (those with > 50% elected at large); cities with larger and smaller councils (the number of councilpersons is measured directly); and cities with more or less local government competition, proxied by the geographic size of the municipality, which assumes that the opportunity costs of voting with one's feet are less when the jurisdiction is small. (The presence or absence of a city manager is not measured; the assumption is that the city manager is an agent of the council and therefore reflects its preferences.[2])

3. Previous research – theoretical issues and new expectations

The second problem with the traditional literature is theoretical. Specifically, the expectation that an at-large council will pursue the policies preferred by the median voter in the city is not straightforward. Cities with ward elections are comprised of single-member districts with plurality rule; in such districts, assuming preferences are unidimensional and single-peaked, usually only two candidates run, and their positions converge to the median of the preferences of the voters in the district (Riker and Ordeshook, 1973: 346–348). Once elected, the winning position on the council will either be the median position of the district medians (Shepsle and Weingast, 1984), or the result of a council logroll in which the members agree to support each other (Weingast, Shepsle and Johnsen, 1981).

By contrast, in cities with at-large elections, the theoretical expectation about which candidates will be elected is generally one of instability, even given the same assumptions about single-peaked, unidimensional preferences. At-large elections are multi-candidate elections with multiple winners; that is, there are k at-large seats available on the council, m candidates compete, and each voter can and does cast k votes. (Voters can also vote strategically and cast fewer than k votes – a case not considered here.) Cox (1990) shows that, in these circumstances, if the number of candidates exceeds twice the number of vacancies (i.e., if m > 2k), then no convergent equilibria exist; it is expected that candidates will disperse toward the ends of the unidimensional issue space. But if m < = 2k, convergent equilibria exist in the interval centered on the median. (If m = 2k, the equilibrium is at the median.) Cox sets forth the intuition behind this conclusion with the following example. Suppose there are 7 candidates, arrayed as shown on a unidimensional issue space:

---
0   A B C D E F G   1

Suppose in addition that there are 4 persons to be elected, each voter has 4 votes, and casts them all, so m < 2k. Voters are uniformly or normally distributed over the issue space from 0 to 1. The 4 candidates with the most votes win. Candidates A, B, and C get no votes from voters in the interval (G, 1); these voters vote for D, E, F, and G instead. Similarly, candidates E, F, and G get no votes from voters in the interval (0, A); they vote for A, B, C, and D. Only D receives votes from every voter. Neither A, B, C, E, F, or G can be sure of winning; only D is certain to win. Clearly, for these at-large candidates, a central location is an advantage.

But suppose there are only 3 vacancies and 7 candidates. Then D gets no votes from voters in the (0, A) interval and none from voters in the (G, 1) interval. In fact, D is now very likely to lose. In this case, where m > 2k, any centrist

candidate has a clear incentive to move his or her position to one extreme or the other. So in this at-large election, candidates have little reason to take a median voter position, contrary to the usual expectation.[3]

We have seen that candidates in an at-large election converge only if $m < = 2k$. Candidates could also converge if they manage to compete as 2 opposing slates, as long as voters also vote as though they regard each slate as a single candidate/position. This is more likely to occur in at-large partisan elections than in at-large non-partisan elections, but it could happen in either. But it is not clear that candidates have an incentive to form these coalitions (slates), or that the coalitions would be stable.

Overall, even though it is the conventional expectation in studies that compare ward to at-large elections, it is not self-evident that at-large elections, because they have multiple winners, will always or even usually produce winners who represent the median voters in the jurisdiction. More importantly for this study, the issue of convergence in at-large elections is not really relevant: once elected, each at-large representative has an incentive to respond to his or her own re-election constituency (Fenno, 1978). This constituency may be geographic; but, more likely, it will be a functional or a policy constituency (e.g., a group that is pro- or anti-growth, or a downtown business group). Like a ward-based council, the eventual at-large council position may reflect either the median of the members' constituency preferences (Shepsle and Weingast, 1984), or the council position may reflect a reciprocity agreement in which each member votes not only for their own projects but also for projects desired by other members (Weingast, Shepsle and Johnsen, 1981). The important difference is *not* that at-large councils are more likely than ward-based councils to represent a city-wide median voter (which, given the disequilibria in most multi-candidate elections, is not a necessary or even likely outcome); rather, the important differece is that ward-based constituencies are more likely to be geographic than at-large constituencies.

However, other institutional variables not mentioned in previous studies of local legislatures are also relevant to the policy choices of city councils: one is the type of the policy choice, and the other is the size of the council. Taken together, we show below that these factors imply the conditions under which ward vs. at-large elections will make a difference, and when they won't. The new theoretical expectations in fact explain why we observe empirically that sometimes ward vs. at-large elections matter, and that sometimes they do not.

Consider first the type of the policy choice. Councils, like all legislatures, make decisions about two basic types of publically provided goods and services. One type is comprised of divisible, desireable goods and services. These resemble Weingast, Shepsle and Johnsen's (1981) characterization of "distributive" goods and services: legislators are likely to see these as benefits for their constituents. Some legislators may seek a higher level of these goods and

services than others, but the projects or programs are generally regarded as providing positive political net benefits to those who receive them. In the national arena, subsidies are an example; those who receive them universally like them. At the local level, parks are an example – those who live near or next to them regard themselves as net beneficiaries and not net losers. Another type of good or service are those that are not divisible. There are two sub-categories of non-divisible publically provided goods and services. One kind is inherently non-divisible. For example, federal regulations such as those discussed by Shepsle and Weingast (1984) are not divisible in that they are jointly consumed, once the level of the regulation is selected. Local government also make regulatory decisions, but they are not the focus of this study. The other type of non-divisible publically provided goods or services are physically divisible, but are politically indivisible. Instead of providing positive political net benefits, like distributive goods and services, these are locally unwanted land uses (LULUs), and provide negative political net benefits when they are located too close to one's constituents. There is an aggregate demand for these goods and services, which, like regulations, can be jointly consumed – but the preferred location of these publically provided goods and services is not in my backyard (NIMBY). There are many examples of these goods and services: landfills and incinerators are an example; jails and prisons are another example, as are police and maybe fire stations; even schools, libraries and community centers are an example – citizens find some level desireable, but would prefer to have the specific school, library or community center nearby but not too close to their house because of the traffic, noise and potential disruption that these services often entail.

When publically provided goods and services are divisible and desireable, re-election seeking legislators each want to provide the desired level to their own constituents. In this situation, legislators clearly have an incentive to adopt a universalistic decision-rule (Shepsle, Weingast and Johnsen, 1981). Every legislator who wants a subsidy or other political benefit for his or her constituents gets one; similarly, every city council person who wants a park for his or her constituents, assuming it is politically desireable, gets one. By contrast, when goods are physically divisible but politically desireable only in the aggregate, so that no single location is too close to a constituent, a universalistic decision-rule is not rational. Instead, legislators have an incentive to adopt a median legislator rule: the number of incinerators or community centers or landfills provided by a community will be decided by the median legislator, and that amount will be jointly consumed. This is the same decision-rule that legislators use to make decisions about regulations: some legislators prefer a higher level of regulation than others; the eventual decision is the level preferred by the median legislator (Shepsle and Weingast, 1984). Like regulations, NIMBYs provide collectively consumed, dispersed benefits, but can result in concentrated costs. Community centers, halfway houses, libraries, schools, and the

like are desireable in the aggregate; but they are also divisible, and must be lo-
cated somewhere. Since they are not necessarily the type of good that every
constituent wants in his or her backyard, there is no incentive for every legisla-
tor to make sure that there is at least one service location, and maybe even
more, for every constituency. Thus, universalism is not a rational decision-rule
for these kinds of goods and services. However, since some level of these goods
and services is collectively desired, a median-legislator decision rule does make
sense: the number of schools, halfway houses, libraries, community centers
and the like is the level preferred by the median legislator. Exactly where these
are located is not relevant to this study; what is relevant is that there will not
be one (or even more than one) in every constituency.

Two hypotheses follow. First, when universalism is the politically rational
decision rule, as it is when publically provided goods and services are divisible
and politically desireable, the number of legislators affects the policy choice.
The more legislators there are, the more parks or subsidies there will be
(Shepsle, Weingast and Johnsen, 1981). Universalism means that every legisla-
tor who wants a project or subsidy for his or her constituents gets one. As
Shepsle, Weingast and Johnsen point out, the overall implication of universal-
ism is that as the number of legislators increases, not only does the number of
politically desireable projects increase, but so also will spending for the pro-
jects increase. Hence, at the local level, the expectation is that, as the size of
the council increases, there will be more politically desireable local goods and
services, and spending for these kinds of goods will consequently also rise. This
will happen no matter whether the council is elected from wards or at large.
For example, if parks are politically desireable, holding other factors constant,
cities with larger councils will provide more park locations than cities with
smaller councils. Ward or at-large elections will have no impact on the number
of park locations.

However, when universalism is not the politically rational decision rule, as
is the case for publically provided goods and services that are physically divi-
sible but politically undesireable when they are located in a constituent's back-
yard, yet some level is still preferred, the rational decision rule is a median legis-
lator rule. The level and number of LULUs that is desired is the level preferred
by the median legislator. In this case, the second hypothesis is that ward vs.
at-large elections will affect the council's decision, but the effect will be in-
direct. Ward constituencies, by definition, are geographic. At-large members
have constituencies too, but they are less likely to be geographic. Instead, they
are likely to represent functional or economic or policy interests. It follows that
ward-based elections are more likely to represent the preferences of voters who
are geographically concentrated. These groups are likely to be racial and ethnic
minorities and low income groups.[4] Consequently, the impact of income and
race/ethnicity on council decisions about NIMBYs will be greater in ward-

based cities than in at-large cities, reflecting the effects of statistical interaction betwen the form of election and the income and racial/ethnic composition of a municipality. This interactive effect will be present only for certain types of policy choices – specifically, those involving divisible goods and services that are policitically desireable, but only at a distance. For distributive goods that are especially desireable when they are located close to where constituents live, the *size* of the council matters, and not whether its members are elected at-large or from wards.

4. Data and hypotheses

The data for this study come from the International City Management Association, the Census, and our own survey. The ICMA data are from their 1981 Form of Government Survey. We selected for our study only those cities with a council-manager form of government whose mayor is not elected directly and has no veto power. The result was 192 cities, predominantly in the West and Southwest, whose average size in 1980 is 61,000 (the smallest is 25,000 and the largest is 361,000); 22% of residents have a college degree (the range is from 4% to 65%); and the median family income in 1980 is $22,340 (the range is from $12,600 to $44,450).[5]

We supplemented these data with information from the Census on government spending from the 1980 *County and City Data Book*. Expenditure data from the Census were not available for 6 cities included in the ICMA data, bringing the usable sample down to 186 for the analysis that requires information on both expenditures and form of government. To find out about the number of city services, we telephoned city offices, and asked respondents about the number of community centers, parks, libraries, public housing projects, correctional and mental health half-way houses, police stations, fire stations, jails, and elementary and secondary schools. For cities with wards, we matched maps of wards to larger road-maps to find the number of service locations in each ward. Only the data on community centers, parks, libraries and fire stations could be analyzed; too few cities in our sample had jurisdiction over the remaining functions to make their responses statistically useful.

There are 5 dependent variables in the study. The first is general expenditures. It is impossible to know *a priori* whether these expenditures represent NIMBYs, distributive goods, or a mix of the two. The expectation is that expenditures per capita are a function of the level of income or poverty in the community, the proportion of minorities in the community, the geographic size of the community, the population in the community, the number of functions for which the government is responsible (Farnham, 1986), and two institutional variables: the number of members on the council, and the interaction

between the proportion of geographically concentrated groups and the type of electoral system. Income could have either a positive or negative impact on per capita spending; income partly indicates ability to pay and partly indicates willingness to pay. Rich cities can pay more, but poorer cities are likely to prefer to spend more, especially on publically provided goods and services that have a private substitute that poorer people cannot afford (Feiock, n.d.). The minority concentration in a city could also have a positive or negative effect on spending: holding income constant, if minorities are politically more liberal than the rest of the city, the effect will be positive; if they are more conservative, the effect will be negative. If there are scale economies, more populated cities should have lower per capita expenditures. If there are scope economies, more land area should reduce per capita spending, but if a large geographic area diminishes competitiveness with other local governments, a larger land area should result in higher per capita expenditures (Gonzalez and Mehay, 1987; Schneider, 1986). Finally, if total spending represents divisible goods that are politically desireable, larger councils will spend more per capita than smaller ones. If, on the other hand, total spending represents divisible goods that are desired as long as they are not located in any one constituent's backyard, then ward based cities are expected to reflect the preferences (whether for more spending or less) of geographically concentrated groups more than at-large cities.

The next set of dependent variables is the number of locations for four types of city services: parks, community centers, libraries and fire stations. Parks are expected to be "pure pork." That is, they are universally desired, and having one next to one's home is a particular benefit. In fact, several hedonic pricing studies demonstrate empirically that proximity to a park − especially the quiet part of a park − raises residential property values. For example, Hammer, Coughlin and Horn (1974) find that proximity to a large regional park in Philadelphia adds to residential property values; Correll, Lillydahl and Singell (1978) produce similar results for homes located close to "greenbelts" in Boulder; and Weicher and Zerbst (1973) show that proximity to the quiet part of neighborhood parks in Columbus, Ohio increases the selling price of a home. For politicians, such a localized positive externality from a public service like a park makes parks especially desireable when they are located next to the homes of one's constituents. Each council incumbent therefore is expected to support nearby parks for his or her constituents; holding other factors constant, the more incumbents, the more parks there will be.

Just as location next to the noisy part of a park may be negatively capitalized into residential property values, so also may location next to community centers and libraries have localized negative externalities. While no hedonic pricing studies focus specifically on community centers and libraries, they are both expected to engender some traffic and noise. Previous research shows that

these reduce property values, even when other factors are held constant. For example, Guntermann and Colwell (1983) theorize that accessibility to schools has a complex relation to property values. While convenient access to public facilities (including schools, libraries and community centers) should enhance home values, a house that is too close to the noise and congestion of such a facility will lose value. Being close raises home values – but being too near can reduce, eliminate, or even reverse that effect. Their study of the distance of homes in Lubbock, Texas from elementary schools upheld these expectations, even when other variables were held constant. In another study, Hughes and Sirmans (1992) examine the effects of traffic volume within two Baton Rouge, La., neighborhoods. Within each neighborhood, they find that traffic reduces house prices. For streets that are not dead-ends, even one additional car has a measureable negative effect. Assuming that community centers and libraries are likely to generate both traffic and noise in adjacent and nearby residential properties, then the adverse effects of these local negative externalities on home values will translate politically into a LULU: politicians will recognize that voters want accessibility to these services, but they also recognize that voters do not want the services to be too close to their home. Unlike parks, every incumbent will not want a community center or library next door to a constituent; thus, larger councils will not translate into more community centers and libraries.

However, when politicians are elected from wards, some proportion of those wards will represent geographically concentrated poor people and minorities. Cities with wards will represent the preferences of these geographically concentrated groups better than cities without wards – no matter whether these preferences are for more community centers and libraries or fewer. Thus, the statistical interaction term between form of election and the proportion of geographically concentrated groups will be statistically significant for community centers and libraries. Moreover, it will have the same sign as the direct effect of the proportion of geographically concentrated groups. For example, if minorities want fewer community centers, then the negative coefficient will be even more negative in ward cities. The size of the council will have no significant impact on the number of community centers and libraries.

Finally, this study also examines fire stations. There are no hedonic pricing studies of the impact of location next to a fire station on residential property values. Having a fire station next to your home is expected to be a mixed blessing, however. On one hand, fire stations generate sudden, loud noise (as do aircraft); but they also engender safety benefits – in case of fire or other emergency, location next to fire and rescue services may well be an advantage. Hedonic pricing studies show that aircraft noise significantly reduces property value (McMillan, Reid and Gillen, 1980) and that public safety (measured as the relative absence of crime) raises home values (and rents) when other vari-

ables are held constant (Clark and Cosgrove, 1990). Overall, then, while parks are expected to be an instance of locally provided "pork" and community centers and libraries are expected to be instances of LULUs, the expectation for fire stations is not clear.

In addition to the two institutional variables (council size and the statistical interaction term), education, income or poverty, the percent of minorities, land area, and population are also expected to affect the number of service locations. Education should increase the demand for service locations, but especially for libraries. Income (or poverty, its absence) could have either a positive or negative impact: on one hand, wealthier communities can afford to pay for more service locations, but on the other they probably have less taste for these services, because they have private substitutes. Similarly, holding income constant, minorities could either prefer more service locations, or fewer. A large land area could reduce the number of service locations if there are scope economies but might also result in the over-production of service locations if it reduces competition among local jurisdictions. Communities with larger populations are expected to provide more service locations, but the relation will increase at a decreasing rate if there are scale economies. Thus, no specific sign can be predicted *a priori* for most of the control variables.[6]

5. Findings

The first column of Table 1 sets forth the results for per capita spending. It is not clear theoretically whether spending reflects pure pork or LULUs or a mix of the two. However, since the results show that the interaction between the percent in poverty and ward cities ($= 1$) vs. at-large cities ($= 0$) is not significant, but that larger councils spend significantly more than councils with fewer members, the composition of expenditures in the cities in our sample appears to be comprised largely of "pork." Of course, other factors affect per capita spending. Poor cities spend more per capita, while cities with high minority concentrations spend less. Also, the number of functions that a city is responsible for affects spending. Specifically, cities that provide more of the 5 services referred to in the *County and City Data Book* (Education, Highways, Health, Police, and Sanitation) spend more per capita than cities that provide fewer of these services. For this study, the most important finding is that even when these variables are held constant, cities with more councilpersons spend more per capita than cities with fewer councilpersons; however, poor people in ward cities have no more clout than they do in at-large cities.[7] The adjusted R^2 shows that all of the independent variables taken together explain 52% of the variance in per capita spending.

The second column of Table 1 shows the multiple regression results for the

Table 1. Regression of expenditures and number of services on number of council persons, ward vs. at-large interaction, and selected control variables (t-statistic in parentheses)

Independent variables	Dependent variable				
	Expenditures per capita	Number of parks	Number of firestations	Number of community centers	Number of libraries
Intercept	− 532*	− 9.81*	− 1.77	− 1.78	− 1.09
	(− 5.79)	(− 1.67)	(− 1.82)	(− 1.46)	(− 1.64)
% with > 16 yrs education	2.64	.19	.008	.063**	.027**
	(1.84)	(1.84)	(.017)	(2.94)	(2.30)
% earning < poverty level	22.1*	.99**	.39*	− .0004	.06
	(4.02)	(2.63)	(6.24)	(− .005)	(1.38)
% minority (black, Am., Ind., Span.)	− 3.12**	− .26**	− .079*	.046**	− .008
	(− 2.37)	(− 2.80)	(− 5.16)	(2.39)	(− .725)
No. square miles	− .02	− .02	− .013**	− .016**	− .003
	(− .474)	(− .73)	(− 2.49)	(− 2.44)	(− .861)
Population	.0006	.0003*	.00006*	.00001	.00001****
	(1.95)	(4.80)	(5.62)	(.846)	(1.83)
Population squared		− .0007*	− .00000	.00009**	.00006**
		(− 3.48)	(− .897)	(1.98)	(2.55)
Number of functions	160*				
	(7.07)				
Interaction: % < poverty × ward vs. at-large	− 2.55	− .17	.16**	.26**	.12**
	(− .479)	(− .44)	(2.49)	(3.19)	(2.73)
Number on city council	34.95**	1.15****	.083	.10	.05
	(3.73)	(1.79)	(.776)	(.71)	(.63)
Adjusted R²	.52	.19	.57	.33	.49
Number of observations	185	190	190	190	190

*   p < .001
**   p < .05
*** p < .02, 1-tailed test
**** p < .05, 1-tailed test

number of parks. The mean number of parks in the sample is 18, and the range is from 0 to 100. Cities with a higher percent of persons in poverty provide significantly more parks than cities with a smaller percent in poverty. Holding other variables constant, the negative sign on percent minority suggests that cities with more minorities provide fewer parks than cities with fewer minorities. The geographic size of the jurisdiction has no independent impact on the number of parks. This could indicate either that the two expectations for this variable (scope economies and less competition) are either both wrong or both right. Population has a significant positive impact on the number of parks, and its

square has a significant negative impact. This means that the number of parks increases with population, but at a diminishing rate. Finally, and most importantly, parks were expected to be an example of a divisible good that every councilperson would want to provide for his or her constituents, so that the larger the council, the more parks there would be. Ward vs. at-large elections were expected to have no impact on the number of parks in a city. The second column of Table 1 supports that expectation. Holding other variables constant, each additional council person means that the number of parks in a city goes up by about 1.2; the coefficient is significant at the .05 level, using a 1-tailed test.[8] Ward elections clearly do not magnify the influence of the poor (or, not shown, the proportion of minorities) on the number of park locations. Together, these independent variables explain just 19% of the variance in the number of parks in the weak mayor, council manager cities that comprise this study.

The third column of Table 1 shows the results for fire stations. The mean number of fire stations in the sample is 3.8; the range is from none to 23. College education has no impact on the number of fire stations, but poverty does: the higher the percent of families who earn less than the poverty level, the more fire stations there are. Similarly, the more minorities there are, the smaller the number of fire station locations. The number of fire stations decreases with increasing geographic size, when other variables are held constant. However, the more people there are in a city, the more fire stations there will be; this relation is linear. There was no expectation regarding whether fire stations are politically desireable or are NIMBYs. The results suggest they are NIMBYs; the positive influence of poverty on increasing the number of fire stations is greater in cities with wards than it is in at-large cities. The number on the city council has no significant effect. Overall, the independent variables explain 57% of the variance in the number of fire stations in th study cities.

The fourth column of Table 1 shows the results for community centers. A community center is expected to be a politically desireable public service – as long as it is not too close to my house. The mean number of community centers in the study cities was 2; the range is from none to 30. Table 1 shows that, as expected, the percent in poverty increases the number of community centers in ward cities; the poverty percentage has no influence in at-large cities (since the direct effect coefficient of percent in poverty is not significant). Also, consistent with expectation, the number of council members has no significant impact on the number of community centers that a city has. However, the number of community centers increases with the level of college education in a city, and it also increases with the percent minority: the more minorities in a city, the more community centers it has. The number of community centers also decreases with the geographic size of a city, and it increases with the square of city population. Overall, these independent variables explain 33% of the variance in the number of community centers in the study cities.

The last column of Table 1 shows the results for the number of libraries. The mean number of libraries in the study sample was just 1.3; the range is from none to 14. Recall that libraries are expected to be desireable — but not if they are located in my backyard. As a result, every councilperson is not going to want a library in his or her constituency. Instead, the number of libraries in cities with wards is more likely to reflect the preferences of geographically concentrated groups than in cities with at-large elections. The results support this expectation. The percent in poverty increases the number of libraries in cities with wards, but has no effect in cities with at-large elections (since the direct effect coefficient is not significant). Also consistent with expectation, the coefficient for the number of council persons is not significant. As expected, as the percent of college educated residents increases, so does the number of libraries. Libraries also increase with population, at an increasing rate; they do not increase with the geographic size of the jurisdiction. Overall, these variables explain 49% of the variance in the number of libraries in the study cities.

Table 2 displays the distribution of parks, fire stations and community centers among wards. For the 28 cities in the study that had wards, and for each service type, the Table records the percent of wards with at least one of the designated service type located in it. Thus, if a city had 9 wards and each ward had at least one park, the city's coverage score for parks is 1.00; if a city had 10 wards, and 8 had at least one park, the city's coverage score is .8. The Table shows the average coverage score over 28 cities for each service type. (Libraries are not recorded because no city with wards had more than 1 library.) The expectation is that politically desireable goods will have more coverage — that is, will be located in a higher percentage of wards — than goods that are politically desireable, but only if they are some distance away. Consequently, the coverage score for parks is hypothesized to be highest, and the data uphold the hypothesis: the average percent of wards in the sample cities with at least one park is 99.9%. The original expectation for fire stations was not clear; in fact, fire stations have fairly broad coverage, but less than that of parks, since the average percent of wards in the sample with at least one fire station is just 75%, and the average with at least one fire station either in the ward or on its border is 84.8%. By contrast, community centers were clearly expected to be a NIMBY, and to have fewer locations than parks and possibly than fire stations. Accordingly, Table 2 shows that the average percent of wards with at least one community center in it is just 40.8%; no community centers were located on ward borders.

Finally, although the results are not shown, more services sites have a significant independent positive impact on expenditures per capita. While more parks and fire stations do not appear to add significantly to total expenditures per capita, additional libraries and community centers do, even when the independent variables hypothesized to affect total per capita spending and shown in Table 1 are held constant.

Table 2. Mean proportion of wards with at least one of the specified services in it (N = 28 cities with wards)

	Service			
	Parks	Fire stations	Fire stations in ward and on border	Community centers
Mean	.999	.75	.848	.408
N	28	28	28	28

6. Summary and implications

Previous studies sometimes show that electing city councils from wards rather than at-large makes a difference for city policy choice and sometimes it does not. This study adds to these studies in several ways. First, it explains why the design of an electoral system might sometimes matter, and sometimes not. Wards, by design, are geographical constituencies, and therefore will better represent interests that tend to be geographically distributed. Poor people and minorities tend to live near one another, and therefore are likely to be better represented by ward-based electoral systems than at-large systems. At-large elections have multiple winners; each winner has a re-election constituency, but that constituency may be but probably is not geographic. More likely, the re-election constituency is a "functional" constituency. It follows that the median legislator on a council elected predominantly or entirely from wards is more likely to represent the preferences of minorities and the poor than the median legislator on a council whose members are predominantly or entirely elected at-large. For those policy choices where the median legislator is the majority rule equilibrium, councils elected from wards will be more responsive to geographically concentrated constituents, compared to councils elected at-large.

But the median legislator is not the equilibrium in all policy choices. For policies that provide divisible benefits that every constituent, no matter whether rich or poor, individually desires, all re-election seeking representatives, no matter whether elected at-large or from wards, have a constituency that they would like to please. In that case, universalism is the equilibrium; if one representative gets the politically desireable, visible benefit, all will. The more representatives there are in a legislature, the more sites in which the visible good will be located. For these types of policies, what matters is the size of the city council, and not whether the council was elected from wards or at-large.

For policies that provide benefits that are divisible but only generally desireable, and not individually desireable when they are located in a constituent's

backyard, representatives seek a certain level of the publically provided good, but would rather not have it too near to any single constituent. For LULUs like these, universalism makes little political sense; instead, the level of a jointly consumed LULU chosen by the legislature is the level preferred by the median legislator. In this case, election from wards or at-large does matter. If the LULU is one that is demanded by geographically concentrated poor and minorities, councils elected from wards will provide more than councils elected at-large. Alternatively, if the LULU is one that geographically concentrated constituents would prefer to avoid, councils elected from wards will provide fewer service locations than those elected at large. In either case, ward-based councils will be more responsive to the preferences of geographically concentrated constituents (the poor and minorities) than councils elected at large.

Notice that, in contrast to previous studies, the expectation is that ward versus at-large elections do not have a simple direct effect. Rather, the effect is interactive: geographically concentrated constituents have more clout in ward cities than in at-large cities.

This study also differs from previous studies in pointing out that only when there is no possibility of an executive veto will legislative preferences become political reality. Thus, the study examines only those councils in council-manager cities that have a mayor who is just a member of the council and has no veto power. Managers are assumed to be agents of the council. In contrast, most earlier studies presuppose that ward based councils and councils elected at-large in a multi-winner election, while they may have different preferences from each other, somehow have the same preferences as a mayor elected at-large in a single winner election, or that the independently elected mayor is irrelevant. While examining only weak mayor cities limits the statistical generalizability or external validity of this study, it enhances the theoretical generalizability of its findings.

Finally, this study differs from previous studies in examining not just the level of expenditures, but also the spatial location of specific city services. For divisible services of the sort that small cities usually provide, location is critical. For some of the divisible services, location near one's residence is unambiguously desireable. These kinds of services are usually referred to as "pork." For other types of divisible services, location near one's residence is less desireable if not downright undesireable; these kinds of services are generally referred to as "LULUs."[9] If this distinction is meaningful, it follows that location matters: "pork" will be geographically more broadly distributed than "LULUs." This study is unique in examining the spatial location of city services, though only for the cities in the sample with wards, and found that services thought to be more like pork were indeed more widely distributed among wards than services thought to be more like LULUs.[10]

Lowi (1964) was right; policy can determine politics. When policies are

divisible and universally desired, universalism is the decision rule used by re-election seeking legislators, and larger legislatures provide more locations of the divisible policy. When policies are physically divisible but not so universally desireable, the median legislator determines the outcome. In that case, legislatures elected at-large will make different choices than legislatures elected from wards because they have different constituencies. For divisible policies that are not universally desireable, councils elected from wards are more likely than at-large councils to respond to the preferences of geographically concentrated groups – no matter whether those preferences are for a greater or smaller quantity of services. More generally, policy affects politics because the politics of distributing pork are demonstrably different from the politics of distributing LULUs.

Notes

1. Shepsle, Weingast and Johnsen (1981) hypothesize more precisely that legislatures whose members are elected from a polity divided into single member districts will prefer a higher level of spending on geographically visible and divisible projects than a single representative elected at-large from the same polity.
2. All but two cities in our study have a city manager, so the presence or absence of a manager is practically invariant in our sample anyway.
3. Mitchell and Trumbull (1992) show that multi-candidate elections are also unlikely to select the Condorcet winner.
4. In fact, numerous empirical studies uphold this expectation, especially for race. See, for example, Feiock (n.d.); Welch and Bledsoe (1988); Cole (1974); Heilig and Mundt (1983); Karnig and Welch (1982); and Vedlitz and Johnson (1982).
5. Five of the 192 cities in our sample reported having changed their form of government within the last 10 years (that is, between 1970 and 1980). Of the five, none altered the system of elections. Moreover, the results reported below do not differ if the five cities are removed from the analysis.
6. Welch's (1990) findings imply that the policy responsiveness of councils elected from wards to the preferences of geographically concentrated groups may be different in the South than in other regions of the country. It was not possible to test this hypothesis directly using the weak-mayor cities that comprise the focus of this study. There are only 4 ward-based Southern cities in this particular subpopulation; this number is too small for a reasonable statistical test of the hypothesis. However, a simple statistical control for region (South versus non-South) did not alter any of the findings reported below.
7. Although not shown in Table 1, the same is true for the interaction between the proportion of minorities and form of election. In fact, for each dependent variable in Table 1, there should be two interaction terms – one for the interaction between income and form of election, and one for the interaction between percent minority and form of election. The two variables, however, are collinear; including both in one equation makes neither variable significant. Table 1 reports only the results for the interaction between income and form of election; the results do not change when the interaction between form of election and percent minority is used instead.
8. One might expect that, in partisan elections, the logroll in a council when it uses a universalistic decision-rule is restricted to members of the majority party. If this where true, the impact of

council size would be different in partisan than in non-partisan elections. Although the results are not shown, the impact of council size on the number of parks is not significantly different in partisan than in non-partisan cities.

9. As Hird (1990) points out, one should not assume that "pork" provides negative net social benefits to society; it is quite possible, despite the negative connotation of the term, that pork can provide positive net social benefits. The same is true with LULUs; they, however, are characterized by the fact that the net benefits to society, even if they are positive, are negative to some individuals (O'Hare and Sanderson, 1993).

10. Several studies examine the distribution city services with respect to issues of equity between rich and poor, and black and white. See for example Benson and Lund (1969); Lineberry (1977); and Lineberry (1978).

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